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**Federal Aviation
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Aviation Maintenance Alerts

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Improve Reliability-Interchange Service Experience

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20590

AVIATION MAINTENANCE ALERTS

The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products. The contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Designee Standardization Branch (AFS-640); P.O. Box 25082; Oklahoma City, OK 73125-5029.

AIRPLANES

BEECH

Beech; Model C-24R; Sierra; Horizontal Stabilizer Damage; ATA 5512

During a scheduled inspection, the technician found cracks in the horizontal stabilizer front spar.

After removing the spar (P/N 169-620001-59), the technician found numerous cracks at the upper radius of the hinge cutout slot. When the technician received a new spar, he discovered a crack approximately .375 inch long at the same location of the hinge cutout slot. It is the submitter's opinion that this is a manufacturing defect caused by making the hinge cutout slot and bending the material edge.

The submitter stated this defect may be present in other models using a Beech spar. The FAA Service Difficult Reporting Program data base contains four additional entries concerning cracks in the horizontal stabilizer hinge area of the spar.

Part total time-0 hours.

Beech; Model N35; Bonanza; Engine Compartment Fire; ATA 2820

During takeoff, the pilot smelled smoke and thought newly applied paint caused the odor. When he cycled the landing gear, the smell dissipated. The pilot noticed the cylinder head temperature (CHT) was a bit higher than normal and opened the cowl flaps. During a precautionary landing, he saw flames coming from the engine cowling. He landed the aircraft and extinguished the fire by using a fire bottle.

Maintenance personnel investigated and found that the fire resulted from a fuel leak. The fuel hose (P/N AN6270-2-13 1/2) from the fuel control unit to the firewall was split. This hose supplies pressure to the fuel pressure indicator. Since the hose was split lengthwise in the middle, fuel sprayed onto the muffler and splashed into the nosewheel well keel area. When the cowl flaps opened, the intensity of the flame melted the nose steering rod in half.

The submitter suggested the manufacturer consider authorizing the replacement of the existing fuel pressure hose with a hose that is rated for 1,000 PSI. He recommended technicians check flexible hoses for condition and life-limit requirements during scheduled inspections. In this case, this incident did not

result in personal injury or serious aircraft damage; however, the outcome could have been catastrophic.

Part total time not reported.

Beech; Model 58P; Baron; Fuel Leak; ATA 2810

The owner delivered the aircraft to a maintenance facility with a report of fuel leakage.

A technician found the right wing bladder-type fuel tank (P/N 58-380003-6) was the leak source. He removed the tank and found fuel stains on two interconnect hoses. The interconnect hose clamps, inside the tank, were only “finger tight” and allowed fuel to leak through the interconnect. There is no means provided to safety these clamps, and the submitter suggested some type of safety device should be provided for security.

Part total time not reported.

Beech; Model BE-65-A90; King Air; Nose Landing Gear Brace Assembly Damage; ATA 3222

During a postflight inspection, the technician discovered a crack in the nose landing gear brace assembly.

The crack extended from the lubrication hole at the top of the brace assembly (P/N 50-820204-3) and curved down approximately 11 inches. (Refer to the following illustration.) The submitter determined this was an “older” style brace assembly. Improper servicing, hard landings, or other abuse may have caused this defect.

Part total time not reported.

Beech; Model 95; Travel Air; Uncommanded Propeller Feather; ATA 6120

Textron Lycoming Model O-360 engines are installed on this aircraft.

The pilot experienced an uncommanded right propeller feathering during flight. Low oil pressure allowed the propeller to go toward low pitch and eventually into feather. The pilot made a safe single-engine landing.

A technician investigated and found a broken spring (P/N 68668) in the oil pressure relief valve. The technician installed a new spring, and an operational test proved the problem was solved.

Part time since overhaul-1,475 hours.

Beech; Model 200; King Air; Landing Gear Indication Failure; ATA 3260

During flight, the pilot reported via radio that the landing gear position indicators failed. Additionally, other cockpit indicator lights were inoperative. Again via radio, a maintenance technician told the pilot to reset the right bus feed circuit breaker. The pilot

reset the circuit breaker, and all cockpit indications returned to normal.

After landing, maintenance personnel investigated and discovered that a system diode burned and opened a circuit. The dual bus diode (P/N 70HF10) is located under the cockpit floor on the copilot's side. This aircraft had undergone a phase-3 inspection 125 hours prior to this occurrence, and the diode should have been checked at that time.

Part total time not reported.

Beech; Model 200; King Air; Smoke in the Cabin; ATA 3320

A technician moved the aircraft into a hangar for an inspection. Approximately 4 minutes after electrical power was applied, he saw smoke coming from a cabin window.

The smoke originated from the third cabin window from the aft on the left side. He turned off the electrical power, and the smoke subsided. After removing the window trim, he discovered the florescent light power supply (P/N PW-FLC-28) was badly burned and still very hot. The interior window trim and surrounding area was heat damaged and smoke residue was present. The interior light rheostat control was previously left in the "dim" position. After removal of the defective parts, the technician sent them to the manufacturer for analysis.

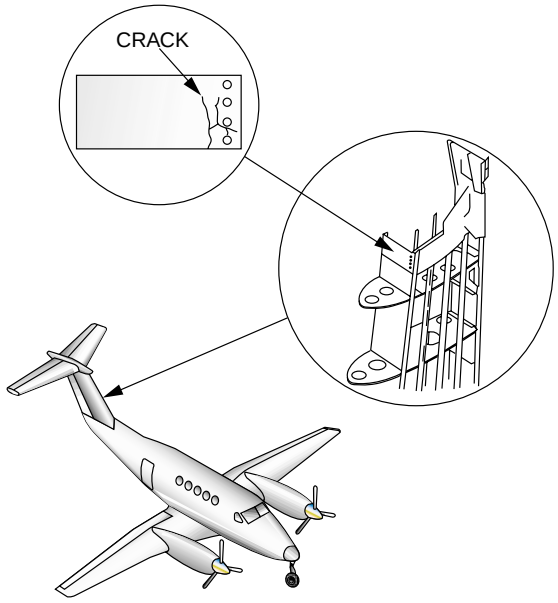
Part total time-482 hours.

Beech; Model 200; King Air; Empennage Structural Defect; ATA 5553

After removing the vertical stabilizer leading edge to accommodate an inspection, the technician discovered the left horizontal stabilizer attachment fitting was cracked.

The fitting (P/N 101-640012-3) is used to attach the horizontal stabilizer to the top of the vertical stabilizer front spar. It appeared the crack originated from the bottom "huck bolt" hole, migrated upward along side the next "huck bolt," and spread out in four directions. (Refer to the following illustration.) The submitter did not offer a cause for this defect.

Part total time-7,972 hours.



Beech; Model 400A; Beechjet; Damaged Cabin Door Latch; ATA 5210

The flightcrew reported the cabin door latch would not engage.

The technician discovered the door handle locking pin (P/N 45A30181-9) would not engage in the handle. Further inspection revealed the bushing was loose in the bearing plate (P/N 45A30159-1). The bushing backed out of the bearing plate and interfered with the locking pin movement. When the bushing was installed in the plate, it was not "staked" in place as required by the manufacturer's technical data.

Part total time-773 hours.

Beech; Model B1900C; Airliner; Defective Engine Fire Extinguishing System; ATA 2620

During a scheduled inspection, the technician discovered the left and right fire extinguisher system "squib" power switches were dislocated from the engine fire extinguisher annunciator/actuator assembly.

The retention tabs on the annunciator body failed to retain the squib switch (P/N 101-570021-6). The submitter stated, "This condition has been found on half of the inspected aircraft."

The submitter suggested the manufacturer change the design of this assembly to provide a positive and secure attachment of the squib power switch.

The FAA received three separate reports from this submitter. The FAA Service Difficulty Reporting Program data base contains two additional entries. The additional entries occurred on a Beech Model C90A aircraft that used the same system parts. In two cases, this defect rendered the engine fire extinguishing system inoperative. In the event of fire, the flightcrew would be unable to discharge the engine fire extinguisher bottle.

Part total time not reported.

CESSNA

Cessna; Model 172N; Skyhawk; Defective Aileron Control System; ATA 2710

While replacing the aileron push-pull rod, the technician noticed the aileron cables were slack.

The technician discovered that a pulley, located at the upper right doorpost bulkhead assembly, was not bolted into position. Evidently, the nut worked off the bolt allowing the bolt to migrate out of the attachment bracket. The technician determined the bolt was one size shorter than the proper size. He speculated the short bolt did not allow full engagement of the nut-locking device and caused this defect.

Part total time-5,400 hours.

Cessna; Model 182R; Skylane; Defective Wing Flap Actuator; ATA 2752

A maintenance technician installed a new wing flap actuator. During an operational test, the flap actuator ran in reverse of the input command.

The technician checked the installation and discovered the new actuator (P/N C301002-0104) motor wire codes were the same as the old actuator and were connected properly. He concluded the new flap actuator was not wired correctly when it was assembled. As a test, the technician reversed the electrical connector pins, and the actuator operated properly.

Part total time-0 hours.

Cessna; Model A185F; Skywagon; High Engine Temperature; ATA 2820

The pilot reported that after takeoff, the engine cylinder head temperature (CHT) began to rise. Even when the mixture control was placed in the "full rich" position, the CHT was still rising. The pilot returned to the departure airport. During a landing approach, the engine stopped when he retarded the throttle. He completed a safe "dead stick" landing.

Maintenance personnel discovered the aluminum fuel pressure line (P/N 0700147-63) was cracked and almost completely severed causing an excessively lean mixture supply to the engine. When he retarded the throttle, there was insufficient fuel pressure to sustain engine operation. It was speculated that vibration and metal fatigue caused this failure.

The submitter stated that his operation is replacing these aluminum fuel lines with a "Stratoflex" flexible hose (P/N 19300-2D0350)

on all like aircraft in his fleet. This modification is being accomplished using the authority of an FAA Field Approval.

Part total time-8,313 hours.

Cessna; Models 300 and 400 Series; Fuel Selector Valve Operation; ATA 2823

The following article was submitted by the FAA, Aircraft Certification Office (ACE-116W) in Wichita, Kansas.

> The FAA received several reports concerning the wing mounted, cable controlled fuel selector valves on Cessna 300/400 series aircraft. These reports indicate the fuel selector valves are very difficult to operate and do not properly stop the flow of fuel to the engines when the cockpit fuel selectors are positioned to the "off" position. The FAA advised Cessna of these reports and recommended that additional service information be developed to assist field maintenance personnel with overhaul and troubleshooting these rather complicated devices.
>
> Field personnel are encouraged to contact the Cessna Service Department when experiencing service problems with single-engine or multiengine fuel selector valves. Also, the valves should be cycled occasionally to remove any contamination that will eventually cause the valves to leak or become very stiff to operate.

Part total time not applicable.

Cessna; Model 340A; Inoperative Emergency Locator Transmitter; ATA 2562

During an annual inspection, the technician performed an operational test of the emergency locator transmitter (ELT). The test revealed the ELT (Ameri-King, Model AK-450) was inoperative.

The technician activated the "G" switch, and the test light illuminated; however, the unit did not transmit an "RF" signal on any frequency. Recently, this submitter found three other like ELT units in the same condition. In this case, the ELT was not properly installed. There were no maintenance record entries or other documentation concerning the installation. The ELT was installed using "Tie Wraps" to secure it to the aircraft structure without using the rack provided by the manufacturer.

This is a piece of emergency equipment that is only required to operate once! However, if and when that occasion arises, the safety and well-being of the aircraft occupants may depend on the proper function of the ELT.

Part total time not reported.

Cessna; Model 414A; Chancellor; Landing Gear Malfunction; ATA 3230

The pilot stated that after cruise flight in subfreezing temperatures, the right main landing gear light did not illuminate immediately when the gear was selected to the "down" position. He heard a banging noise before the light illuminated. After landing, the aircraft was parked for several hours with the temperature still below freezing. During a preflight inspection, the right gear light again would not illuminate, and the gear warning light was on.

The pilot summoned maintenance personnel, and they moved the aircraft into a hangar where the temperature was above freezing. They conducted a landing gear operational test and the gear operated normally. As a precaution, a technician removed the right gear actuator (P/N 9910136-3) and discovered it contained approximately 1/3 cup water in the hydraulic fluid (MIL-H-5606). He investigated further and discovered the hydraulic system reservoir service port outside the baggage compartment was missing an "O-ring" seal. The submitter suspects this defect occurred when the missing "O-ring" seal allowed water to enter the system, collect in the right gear actuator, and freeze.

Part total time-6,219 hours.

Cessna; Model 421; Golden Eagle; Foreign Objects; ATA 5530

While conducting a preflight inspection, the technician noticed something sticking out of the gap between the rudder and the vertical stabilizer.

After investigating further, he discovered a very large bird nest installed by a well-intentioned bird whose only purpose was to establish a happy home. This aircraft had screens installed; however, they failed to deter the industrious fowl.

Since spring is here, it behooves everyone to be more vigilant for intrusions of all types of "critters" (not just birds) into aircraft interiors.

The aircraft total time is not applicable, "critters" don't care.

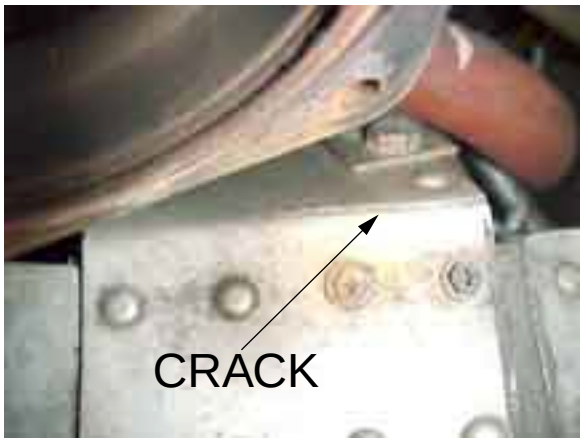
Cessna; Model 421C; Golden Eagle; Engine Mount Beam Cracks; ATA 5410

During an annual inspection, the technician discovered a crack in an engine mount beam.

The engine mount beam (P/N 5054030-42) in the left engine nacelle was severely cracked and in danger of failure. (Refer to the following illustrations.) Also, the submitter found the same discrepancy on the right engine mount beam.

The FAA, Service Difficulty Reporting Program data base contains seven additional entries involving structural defects associated with the engine mount beam assembly. All operators and maintenance personnel are advised to check the engine mount beams closely at every opportunity.

Part total time-3,980 hours.



Cessna; Model 560; Citation; Fire Extinguisher System Defect; ATA 2621

During a scheduled inspection, the technician discovered a loose fitting on the fire extinguishing system.

A "B" nut on a tube assembly (P/N 6614200-27) backed off and was retained by one thread. This tube is used to route the fire extinguishing agent to the right engine. This defect presents a serious degradation of safety and deserves full attention at every opportunity. This was the first scheduled inspection of this aircraft since it was delivered from the manufacturer. The submitter suggested the factory pay more attention to detail.

Part total time-573 hours.

Cessna; Model 650; Citation; Landing Gear Failure; ATA 3222

The pilot reported that after takeoff, the landing gear would not retract. He made a safe landing at the departure airport and summoned maintenance personnel.

The submitter found the "squat" switch would not activate when the aircraft weight was removed from the gear. Additionally, when the aircraft landed, the nosewheel was deflected to the left. The "oleo" strut was "binding;" therefore, it did not completely extend. The nosewheel did not center, and the "squat" switch did not actuate. The "oleo" seals were leaking between the air and fluid chambers which contributed to this chain of events.

Part total time not reported.

GULFSTREAM

Gulfstream; Model GIV; Abnormal Wing Flap Operation; ATA 2750

The flightcrew reported the wing flap operation was "sluggish" with the engines operating and would not operate using only the auxiliary system.

A technician discovered the wing flap selector valve (P/N 57380-1) internal spool access cap was not safetied when it was installed. The cap backed out approximately three revolutions causing the slow or "sluggish" operation.

Part total time-3,648 hours.

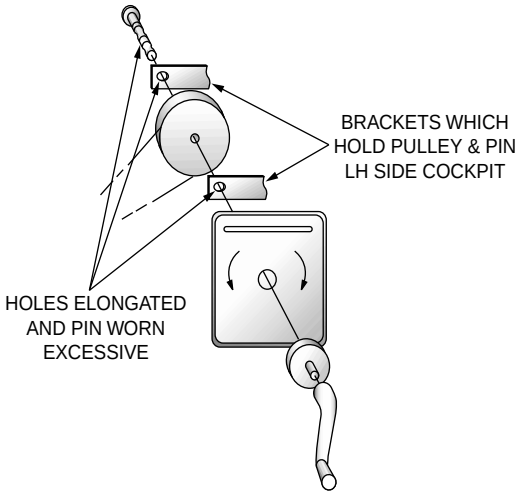
PIPER

Piper; Model PA12; Super Cruiser; Defective Elevator Trim Control; ATA 2731

During an annual inspection, the technician found the elevator trim control in the cockpit displayed excessive free play. When operated, the trim control would bind at various points in its travel.

Further investigation disclosed the elevator trim pulley and shaft were worn excessively into the support brackets. The holes in the support brackets were severely elongated, and the shaft was worn. (Refer to the following illustration.) Give this area special attention during scheduled inspections and maintenance.

Part total time-3,100 hours.



Piper; Model PA18; Super Cub; Structural Damage; ATA 5313

Information for this article was submitted by an FAA-certified repair facility.

The FAA-certified repair facility recovered six aircraft. Of the six aircraft, five displayed severe corrosion damage on the top fuselage longeron. In each case, the corrosion damage was located under the sliding window channel on the left side. Due to this corrosion, the longeron was replaced on each aircraft.

The submitter believes the accumulation and retention of moisture under the window channel caused the corrosion damage. The submitter suggested technicians remove the felt window channel material and give this suspect area a close examination during inspections.

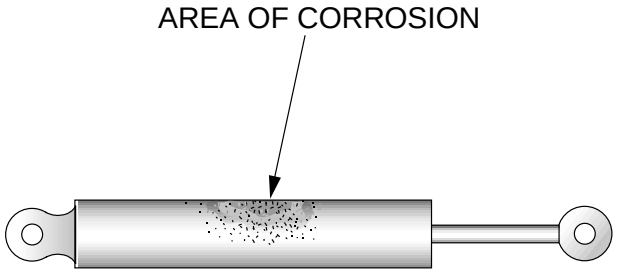
Part total time not reported.

Piper; Model PA23-250; Aztec; Main Landing Gear Hydraulic Leak; ATA 3233

During a scheduled inspection, the technician noticed hydraulic fluid on the right main landing gear actuator.

When the fluid was cleaned, the technician found the actuator (P/N 350302) had pin holes in the body of the cylinder. (Refer to the following illustration.) The submitter determined the pin holes were the result of "intergranular" corrosion. The submitter did not give the origin or cause of the corrosion.

Part total time-3,120 hours.



Piper; Model PA24-250; Comanche; Wing Spar Structural Defect; ATA 5711

A maintenance technician conducting an annual inspection found a serious structural defect in the left and right rear wing spar attachment.

All the rivets used to attach the rear wing spar attachment brackets to the rear center section were sheared on both the left and right sides. In order to provide better access for inspection of the rear spar center section area, the submitter recommended the manufacturer design and authorize the installation of inspection holes in the rear baggage compartment floor. The cause of this damage was not given.

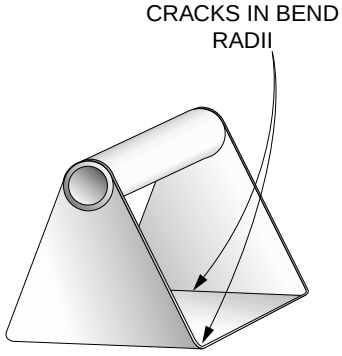
Part total time-4,398 hours.

Piper; Model PA28-180; Cherokee; Rudder Control System Free Play; ATA 2720

During an annual inspection, the technician discovered excessive free play associated with the rudder pedals.

After investigating further, the technician found the rudder center crossbar support assembly (P/N 63451-00) was cracked. (Refer to the following illustration.) The rudder crossbar support cracks were located in the bend radii along the lower edge. Excessive rudder pedal input, metal fatigue, and mild corrosion may have caused this damage.

Part total time-3,497 hours.



Piper; Model PA28R-201T; Turbo Dakota; Abnormal Engine Mount; ATA 7120

The technician removed a damaged engine mount and obtained an overhauled replacement part from an overhaul facility.

The technician noticed a misaligned tube on the overhauled engine mount (P/N 35704-02). The tube was located on the lower inboard right side of the mount. When it was installed, the nose gear down-lock mechanism was binding and failed in the gear-down position.

It was obvious the engine mount was improperly aligned or secured during the overhaul process. The submitter cautioned all maintenance personnel to conduct thorough receiving inspections on all parts.

Part time since overhaul-"0" hours.

Piper; Model PA32R-301; Saratoga; Nose Landing Gear Failure; ATA 7603

The owner reported that all attempts to extend the nose landing gear failed, and he landed the aircraft with the nose gear in an "intermediate" position.

The technician recovered the aircraft from the runway and placed it in a hangar on jacks. He found the cable (P/N 554051) which controls the alternate air door was entangled in the nose gear lower drag link. This prevented the nose gear from attaining the "down-and-locked" position. The alternate air control cable was not properly routed or secured in the engine compartment. One of the "tie wraps," used to secure the cable was broken allowing the cable to become slack and entangle in the drag link.

The submitter recommended that manufacturers revise the appropriate technical data to clarify the routing and security of the alternate air cable.

Part total time-4,687 hours.

Piper; Model PA34-200T; Seneca; Nose Landing Gear Failure; ATA 3230

During a landing approach, the nose landing gear failed to extend, and the pilot made a landing without aid of the nose gear.

A maintenance technician discovered the nose gear centering assembly attachment clevis bolt (P/N 400-910) contacted the aft tube assembly (P/N 95771-0) of the nose gear door actuation mechanism. This defect prevented the nose gear from extending and was evidenced by marks on the tube assembly. The marks indicated this condition had existed for some time prior to this occurrence.

FAA Airworthiness Directive (AD) 92-13-05 and Piper Service Bulletin (SB) 893 pertain to this subject. This aircraft was in compliance with the AD and the SB. The submitter suggested that this area receive close attention during inspections.

Part total time-456 hours.

Piper; Model PA34-200T; Seneca; Nose Landing Gear Failure; ATA 3230

During takeoff, the pilot heard a loud abnormal noise when the landing gear was retracted. The noise seemed to come from the nose gear area. The pilot attempted to extend the landing gear; however, the nose gear would not lock in the "down" position. The nose gear collapsed during the landing.

After moving the aircraft to a hangar, maintenance personnel discovered the nose landing gear actuator mount assembly (P/N 95724-02) failed. It appeared the mount assembly was "torn" loose at the point where the actuator is bolted to the mount. The resulting damage caused the downlock to shift and release the nose gear.

The submitter speculated this damage was caused by hard landings. He suggested that pilots report all hard landings to maintenance

personnel. After each reported hard landing, maintenance personnel should conduct a thorough inspection.

Part total time not reported.

Piper; Model PA34-220T; Seneca; Cabin Heater Inoperative; ATA 2140

On a new aircraft, the pilot found the cabin heater would not operate. The heater circuit breaker tripped to open the electrical circuit and prevented operation.

Maintenance personnel made repairs to the heater overhead electrical wiring; however, the heater failed again on the next flight. The technician removed the heater (Jan Aero Model B3500, P/N 91E88-1EL) unit. The unit had a total of .5 hour of operation on the Hobbs meter. During an inspection, the technician found the internal blower fan (P/N 753-201) separated from the motor hub arbor, the differential pressure switch (P/N 94E42-3) pneumatic fitting threads were stripped, and large “drill shavings” restricted the fuel inlet line solenoid valve.

The submitter suggested these discrepancies were due to “poor” quality-control procedures.

Part total time-.5 hours.

ZENITH

Zenith; Model CH-2000; Engine Exhaust Fumes; ATA 7800

The pilot reported exhaust fumes in the cockpit during flight.

While investigating, the technician discovered that an engine exhaust system slip joint above and forward of the heater muff was leaking. The leaking exhaust gases were drawn into the heat muff and into the cockpit. There were excessive exhaust stains in the area, and the “scat” hose on the intake side of the heat muff was deteriorated and heat damaged.

The manufacturer redesigned the exhaust system to prevent this type of problem. The submitter suggested all operators be aware of these circumstances and check the exhaust system thoroughly during scheduled inspections.

Part total time-375 hours.

HELICOPTERS

BELL

Bell; Model 206BIII; Jet Ranger; Fuel Contamination; ATA 7300

This report was submitted by a helicopter operator who experienced fuel contamination on four occasions following boost pump failure.

On each occasion, the fuel filter was full of a black carbon material believed to be from the boost pump (P/N Airborne 1C27-4) interior. This operator of 16 like helicopters believes internal break down of the fuel boost pump is the source of fuel contamination and the cause of the 4 failed boost pumps.

Blockage of the fuel filter will cause a bypass of the filter which allows the supply of unfiltered fuel to the engine. Loss of fuel pressure along with contaminated fuel and filter blockage can seriously compromise flight safety.

Part time since overhaul-59 hours.

Bell; Model 206BIII; Jet Ranger; Tail Boom Structural Defects; ATA 5500

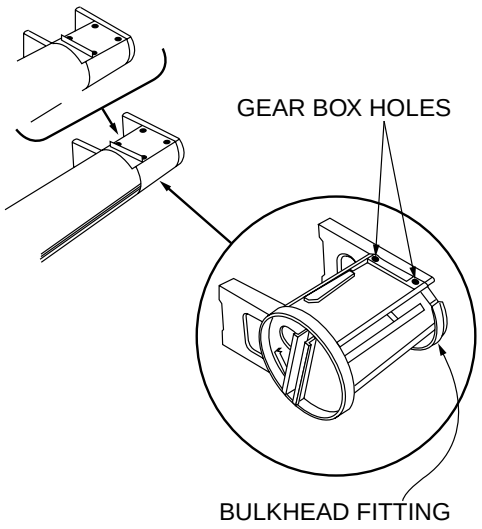
During a 100-hour inspection, the technician discovered structural defects in a fitting attached to the aft tail boom bulkhead.

The tail boom bulkhead (P/N 206-030-446-001F) fitting cracked at an attached fitting used for mounting the tail rotor gearbox. (Refer to the following illustration.) The aft upper fitting holes were severely cracked. It appeared the cracks developed at the aft tail rotor mount

holes and migrated to adjacent rivet holes. The technician found cracks on the top of the fitting which were not visible when the fitting was installed.

The submitter speculated that this damage was caused by undertorque or overtorque of the hardware during installation or excessive tail rotor vibration.

Part total time-8,345 hours.



Bell; Model 407; Defective Rotor Brake Assembly; ATA 6321

When the technician removed the rotor brake caliper assembly (P/N 206-340-301-103), he discovered the guide bolts and holes in the pad assembly were severely worn.

The guide bolts (P/N D0166-1) were worn in excess of 50 percent of the bolt diameter. The guide holes in the pad assembly (P/N D0163-1) were worn over 65 percent larger than the original diameter. The submitter speculated this damage was caused by excessive vibration and by a small area of contact between the bolt and the pad assembly guide holes. He recommended inspecting this assembly each 600 hours of operation.

Part total time-819 hours.

Bell; Model 407; Main Rotor Control Stiffness; ATA 6710

The pilot reported stiffness in movement of the cyclic and collective controls.

During an investigation, the technician discovered the swashplate seal (P/N 406-010-310-407-101) wore a groove in the cap (P/N 406-010-418-101). The groove allowed grease from the bearings to enter the top of the swashplate's outer edge under the boot. The grease contaminated the Teflon® lined races of the "uniball" assembly and caused changes of the swashplate friction setting.

The submitter recommended constructing the cap from a "tougher" material to prevent damage from the seal.

Part total time-1,1193 hours.

ENSTROM

Enstrom; Model 280FX; Engine Failure; ATA 2841

During a landing approach, the engine failed. The pilot made a safe emergency landing without injury or helicopter damage.

During an investigation, the technician discovered fuel starvation caused the engine failure. An inaccuracy in the fuel quantity indicating system gave the helicopter occupants a false sense of security until the engine stopped.

The maintenance records revealed the fuel quantity system's fuel level sending unit was replaced 26 hours prior to this occurrence. According to the maintenance manual, recalibration of the fuel quantity system is required when the fuel tanks are replaced. However, recalibration is not required when the sending unit is changed.

Enstrom revised the maintenance manual and issued Service Directive Bulletin 0092, dated March 6, 2000. The new technical data provides more explicit fuel quantity system calibration requirements and procedures

which apply when making component changes and/or repairs. Also, there is a requirement for annual calibration checks.

Helicopter total time not reported.

EUROCOPTER

Eurocopter; Model EC120B; Colibri; Defective Bonding; ATA 6220

A maintenance technician found the bond between the lower wear plate, supporting the main rotor droop ring, and the drive assembly scissors (P/N C622A1003101) was broken.

The wear plate was bent approximately 25 millimeters away from the bonded position. The submitter speculated this failure was caused by failure of the bonding material. He recommended improved quality control of the bonding process.

Part total time-715 hours.

Eurocopter; Model AS350BA; Defective Antivibrator Assembly; ATA 6220

While conducting a scheduled inspection, the technician discovered flaking lead material inside the main rotor head frequency adapters.

Further inspection revealed a bolt was broken inside the antivibrator spring housing. After removing and disassembling the antivibrator assembly, the technician discovered the lead weights were severely galled. It appeared the bolt used to secure the smaller lead weight to the inner shaft assembly lost torque and failed. The aluminum locating pin was also broken.

The submitter recommended removing the lifting eye plug from the top of the antivibrator assembly, and the torque on the lead weight securing bolt should be checked during 500-hour "T" scheduled inspections.

Part total time-3,022 hours.

Eurocopter; Model AS350B-2; Ecureuil; Hydraulic Fluid Loss; ATA 2900

While conducting a postflight inspection, the technician discovered the hydraulic system reservoir fluid level was approximately .5 liter low. There were no visible signs of fluid leakage.

The next day, during a postflight inspection, the technician observed the same condition which led him to investigate further. The main gear box sight gauge was higher than normal, and the fluid had a slight reddish cast. The technician discovered the hydraulic transfer lines inside the main gear box were loose at the flared upper housing. The loose lines allowed hydraulic fluid to leak into the main gear box and mix with the Mobil Jet II oil. He removed the hydraulic lines, found no other damage, and re-installed the hydraulic lines in accordance with the manufacturer's maintenance manual. The submitter stated this defect was caused by "poor quality control" during the manufacturing and assembly process.

Part total time-25 hours.

POWERPLANTS AND PROPELLERS

PISTON ENGINE CRANKCASE BREATHER ICE PROTECTION

The following article was submitted by the FAA, Aircraft Certification Office (ACE-116W) located in Wichita, Kansas.

> Recently, a small single-engine type certificated aircraft experienced an engine failure due to a reported frozen crankcase breather line. The engine reportedly seized after all the oil was lost (presumably through the front crankcase seal). When this happens on a single-engine airplane, the lost oil usually obstructs the

windshield which further adds to the pilot's difficulty in making a safe emergency landing.

The FAA has repeatedly issued Airworthiness Directives and Alerts on the subject problem which can be adequately resolved simply by ensuring there is a number 30 (1/4") hole in the breather line at least 6 inches (a maximum of 9 inches) from the end of the line where it exits the cowl. A 9-inch length of hose attached to the end of the breather line will provide equivalent protection if it can vibrate on the exterior of the airframe. This additional hose could possibly prevent oil residue buildup. The additional hose installation would be considered a major modification and should be installed using FAA Field Approval authority. If the additional hose is installed, this would preclude the need for drilling a number 30 hole in the breather line. Maintenance personnel are encouraged to verify that all piston-powered aircraft are adequately protected with a method of crankcase breather ice protection.

It should be noted that the ice actually forms from moisture inside the breather line during operations at below freezing ambient temperatures. During crash investigation of aircraft that have experienced this condition, a cylinder of ice is usually found in the crankcase breather line that is a minimum of 2 inches in length. An ice cylinder up to a maximum length of 4 inches is sometimes detected. Obviously, environmental conditions suitable for airframe icing do not need to exist for crankcase breather icing to occur. Addition of the alternate ice hole will only provide for an alternate breather outlet when the exposed end of the line freezes over. However, addition of the vibrating hose should prevent ice from forming at the end of the tube/hose.

Installation of the number 30 hole in the breather line will sometimes result in an oil streak on the interior of the engine nacelle or on the fuselage or abrasion of the fuselage if the 9 inch hose is used. However, this is considered to be a small price to pay for such significant protection of the engine installation.

Total time not applicable.

TURBOCHARGED ENGINE INSTALLATIONS

The following article was submitted by the FAA, Aircraft Certification Office (ACE-116W) in Wichita, Kansas.

Recently, a certificated air carrier experienced a reduction in engine power that was attributed to a stuck turbocharger waste gate. The FAA issued FAA Safety Recommendation 99.397 as a result of this incident. Safety Recommendation 99.397 resulted in the airframe manufacturer advising the FAA that they will issue a Mandatory Service Bulletin (MSB) concerning this subject. The MSB will apply to inspection of the turbocharger waste gates installed on airplanes operated by certificated carriers. The FAA encourages all operators of turbocharged aircraft to at least annually conduct a test operating the aircraft at approximately 17,000 feet altitude and verifying that the manifold pressure is capable of increasing as engine RPM is increased. This test is referred to and is equivalent to a turbocharger "BOOTSTRAP CHECK" in accordance with the procedures outlined in applicable aircraft maintenance manuals.

Many aircraft were modified to turbocharger-powered engine installations prior to the dates that required instructions for continued airworthiness. Most of these early modified aircraft should be capable of being evaluated for proper turbocharger operation by operating the turbonormalized and the turbocharged (higher than ambient

manifold pressure limit) as described above. Automatic or manual waste gate operation should be verifiable at altitudes below 17,000 feet.

ENGINE OIL QUICK DRAINS

This article was furnished by the FAA, Aircraft Certification Office (ACE-116W) located in Wichita, Kansas.

A high performance single-engine airplane was equipped with a retractable landing gear and had a remanufactured engine. The remanufactured engine was equipped with an engine oil quick drain valve. The oil quick drain valve was damaged when it contacted the nose landing gear during the retraction cycle. This damage caused a loss of engine oil during flight. Due to the loss of oil, the pilot made an emergency landing which resulted in an accident.

The FAA has repeatedly encouraged quick drain valve manufacturers to provide cautionary information applicable to retractable landing gear configured airplanes and routinely published articles applicable to this subject. At the present time, the FAA does not believe there is sufficient adverse service information on engine oil sump quick drain valves to issue regulatory action. The purpose of this article is to remind owners, operators, mechanics, and inspection personnel to maintain vigilance during installation and routine inspection of engine oil sump quick drain valves installed on all aircraft. Airplanes equipped with retractable landing gear and/or engine oil quick drain tube extensions that could adversely affect the opening of the new or old quick drain should receive additional attention.

Part total time not applicable.

ALLISON

Allison; Model 250-C20B; Combustion Case Defect; ATA 7240

This engine was installed in a Bell Model 206BIII helicopter.

While hovering during a training flight, the pilot noticed the turbine outlet temperature (TOT) was higher than normal. After a safe landing, the pilot reported this anomaly to maintenance.

After changing the bleed air valve and checking the anti-ice system for proper closing of the valve, the technician found the problem was still present. An engine operational test revealed a substantial power loss which prompted removal and disassembly of the engine. While examining the engine, a technician discovered a crack approximately 3 inches long in the combustion case (P/N 6870992). (Refer to the following illustration.) The crack was located on the back of the combustion case adjacent to the fuel nozzle. The cause of this defect is presently under investigation and will be reported in a future edition of this publication when it is available.

Part time since overhaul-199 hours.

TEXTRON LYCOMING

Textron Lycoming; Model IO-540-K1G5; Induction System Oil Leak; ATA 8550

This engine was installed in a Piper Model PA36-300 aircraft.

Following a flight, the pilot noticed engine oil leaking from the engine cowling. It appeared the oil was coming from the engine induction system.

A maintenance technician investigated finding that the number 3 cylinder intake extension pipe had fallen out of its swaged receptacle and chafed a hole through the bottom of the engine oil sump (P/N 72346). (Refer to the following illustrations.) After removing the oil sump, the technician discovered this problem occurred previously at the same location and was repaired by welding the sump. Also, the oil sump "swash" plate was broken at two attachment points, and there were multiple cracks at each of the attachment points. The submitter gave no further details concerning this failure.

Part time since overhaul-253 hours. Part total time-6,777 hours.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

KIT FOX

Kit Fox; Model IV-1200; Rudder Pedal Structural Failure; ATA 2720

While investigating a recent incident, the inspector discovered the right rudder pedal was cracked and broken.

The rudder pedal (P/N 14D01) separated at the point where it attaches to the torque tube. The inspector stated it appeared the crack began at an earlier date and progressed to the point of failure. He also discovered excessive wear on the torque tube where the "Nylock" bearing rotates.

Sky Star Aircraft Corporation (Kit Fox) issued Service Letter (SL) number 47, dated August 22, 1995, concerning rudder pedal torque tube cracks. The SL is applicable to all Kit Fox Models 1 through 4, and Classic 4. The SL provides thorough information on this subject and offers a "Rudder Pedal Torque Tube Reinforcement Kit" (P/N 35015.000) designed to alleviate cracking problems. Kit Fox is very interested in cracking incidents, and they have fully cooperated to supply information on this subject.

We recommend all owners and operators of affected aircraft inspect the rudder torque tube assemblies (left and right) for any cracks or indications of wear. Compliance with the SL is strongly urged. Considering the low number of operating hours, this torque tube displayed excessive wear on the internal forward side of the torque tube.

Part total time-194 hours.

AIR NOTES

AIRCRAFT FABRIC COVERING DEFECTS

A concerned maintenance technician related the following information which may be applicable to all fabric-covered aircraft.

During a scheduled inspection, the maintenance technician discovered the edges of the fabric covering tapes were shrunk. It appeared the tapes shrunk after the fabric covering components were in service.

While investigating the cause of this defect, the technician discovered the person responsible for cleaning this aircraft used a "steam cleaner" with "super hot" water and high pressure. During an experiment using scrap material, the technician found that water in excess of 150 °F shrank the Dacron® tape. Even short exposure to hot water caused the material to shrink, soften, and pull away from the base fabric. Dacron®-edge tape is not "pre-shrunk" and is normally applied without shrinking; therefore, excessive heat may cause failure of the fabric covering system.

It is extremely important that all maintenance technicians, owners, and operators exercise caution to prevent the exposure of fabric-covered aircraft surfaces to high temperatures. High temperature, pressure, and water may be a deadly combination for fabric surfaces.

We offer our thanks and appreciation to the conscientious submitter of this information.

SERVICE DIFFICULTY PROGRAM DATA AVAILABLE ON THE INTERNET

The FAA, Service Difficulty Reporting (SDR) Program is managed by the Aviation Data Systems Branch, AFS-620, located in Oklahoma City, Oklahoma. The information supplied to the FAA in the form of Malfunction or Defect Reports, Service Difficulty Reports, or by other means, is entered into the SDR data base. This information has been available to the public through individual written request. This method has provided the aviation public with an invaluable source of data for research or finding specific problems and trends.

The Service Difficulty Reporting Program relies on the support of the aviation public to maintain the high quality of data. AFS-620 has included the SDR data on an Internet web site, which is now available to the public. Using the web site will expedite the availability of information. The Internet web site address is:

http://av-info.faa.gov

On this web site, select "Aircraft" along the top of the page, next select "Service Difficulty Reporting," and then select "Query SDR Data."

This web site is now active; however, it is still under development and improvements are being made. We ask for your patience, ideas, and suggestions. If you find the web site useful, let us know. Also, spread the word about the availability of information on the web site. To offer comments or suggestions, you may contact the web master or call Tom Marcotte at (405) 954-4391.

Please remember that the information contained in the SDR data base is only as good as the input we receive from the aviation public. Also, the data used in production of this publication is derived from the SDR data base. In that regard, we solicit and encourage your participation and input of information.

This publication, as well as many other publications, was previously included on the "FedWorld" internet site. The FedWorld site is scheduled for termination on April 15, 2000. The data previously listed there is presently being transferred to the "av-info" web site.

ELECTRONIC AIRWORTHINESS DIRECTIVES

In the past, we have published the Airworthiness Directives (AD's) that were issued during the preceding month. Now, the AD's have been included in the ever-growing volumes of electronic media information systems.

The internet site for AD's is:
<http://av-info.faa.gov>

This site opens the FAA Flight Standards Service, Aviation Information web site home page. There are six selections across the top of the page, and the "Aircraft" selection will take you to the page where the AD's are located.

ADDRESS CHANGES

In the past, the Designee Standardization Branch (AFS-640) maintained the mailing list for this publication. Now, the Government Printing Office (GPO) sells this publication and maintains the mailing list; therefore, please send your address change to:

U.S. Government Printing Office
ATTN: SSOM, ALERT-2G
710 N. Capital Street N. W.
Washington, DC 20402

You may also send your address change to GPO via FAX at: (202) 512-2168. If you FAX your address change, please address it to the attention of: **SSOM, ALERT-2G**.

Whether you mail or FAX your address change, please include a copy of your old address label, and write your new address clearly.

SUBSCRIPTION FORM

Many of our readers voiced their concern when, due to a budget reduction, it was necessary to stop printing and distributing paper copies free of charge.

The Government Printing Office (GPO) agreed to print and distribute the Alerts. However, there will be a 1-year subscription charge for this service. The charge will be $25 per year for domestic mailings and $31.25 per year for foreign mailings. For your convenience, a subscription form is included in this publication.

IF YOU WANT TO CONTACT US

We welcome your comments, suggestions, and questions. You may use any of the following means of communication to submit reports concerning aviation-related occurrences.

Editors: Phil Lomax (405) 954-6487
and/or
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<9-amc-ga-alerts@mmacmail.jccbi.gov>

You can access current and back issues of this publication from the internet at:
http://www.mmac.jccbi.gov/alerts

This web site also has view, search, E-Mail, and M or D submit functions.

AVIATION SERVICE DIFFICULTY REPORTS

The following are abbreviated reports submitted between February 29, 2000, and March 25, 2000, which have been entered into the FAA Service Difficulty Reporting (SDR) System data base. This is not an all inclusive listing of Service Difficulty Reports. The full SDR reports can be found on the internet at: <http://www.fedworld.gov/pub/faa-asi/faa-asi.htm>. This internet address takes you to the FAA ASI Library and the SDR reports are listed by weekly entries. This data base is maintained by the FAA, Regulatory Support Division, Aviation Data Systems Branch, AFS-620 located in Oklahoma City, Oklahoma. The mailing address is:

FAA
Aviation Data Systems Branch, AFS-620
PO Box 25082
Oklahoma City, OK 73125

These reports contain raw data that has not been edited. If you require further detail please contact AFS-620 at the address above.

FEDERAL AVIATION ADMINISTRATION
Service Difficulty Report Data

Sorted by Aircraft Make and Model then Engine Make and Model. This Report Derives from Unverified Information Submitted By the Aviation Community without FAA review for Accuracy.

ACFT MAKE	ENG MAKE	COMP MAKE	PART NAME	PART CONDITION	DIFF-DATE	T TIME
ACFT MODEL	ENG MODEL	COMP MODEL	PART NUMBER	PART LOCATION	FAA REPORT NO.	TSO
REMARKS						
BELL			BEARING	ROUGH	02/29/2000	4854
UH1H			204040623111	T/R INDICATOR	2000030400168	
BEARING EXTREMELY ROUGH, AND RATCHETY.						
CESSNA			BEAM	CRACKED	03/14/2000	
421			505403033	LT NACELLE	2000031700088	
THE LEFT ENGINE AFT BEAM ASSEMBLY IS CRACKED. CRACK IS AT THE OUTBOARD BEAM ASSEMBLY (P/N 5054030-13) ATTACHMENT POINT AT THE TOP SIDE, AFT END, EXTENDING 1.1250 INCHES. THE OUTBOARD BEAM ASSEMBLY (5054030-13) ALSO HAD 3 RIVETS WITH HEADS MISSING ON THE INBOARD ROW OF RIVETS. THESE RIVETS ARE THE 7TH, 8TH, AND 9TH RIVETS COUNTING FORWARD FROM THE AFT BEAM ASSEMBLY.						
CESSNA	CONT		MANIFOLD	CRACKED	03/14/2000	
421	GTSIO520D		633945	ENGINE	2000031700087	
DURING ANNUAL INSPECTION, A CRACK EXTENDING ABOUT 2 INCHES EACH SIDE OF THE THREADED BOSS. THE BOSS HAD BEEN DRILLED AND TAPPED FOR A HELICOIL. THREADED BOSS IS FOR ATTACHING THE INTERCOOLER.						
CESSNA		PACIFICSCIEN	BOTTLE	LEAKING	03/06/2000	
500CESSNA		18225901	99121033	MLG	2000030900066	
NEW EMERGENCY BLOW DOWN BOTTLE LEAKING. APPROXIMATELY 500 PSI IN 24-HOUR PERIOD.						
CESSNA			PIVOT ASSY	CRACKED	03/15/2000	5460
R182			22411027	MLG	2000031700123	
SUBMITTER STATED FOUND FIVE OTHER PIVOTS WITH THE SAME CRACK. ALL OTHER PIVOTS HAVE 4,500 HOURS TOTAL TIME OR MORE. POSSIBLE CAUSE UNKNOWN. (X)						
HUGHES			PT GOVERNOR	INOPERATIVE	03/03/2000	8372
369D			252476911	ENGINE	2000032300588	
PT GOVERNOR INOPERABLE, UNABLE TO HOLD N2 RPM.						
PIPER			FITTING	LOOSE	03/07/2000	3017
PA24250			2366200	WS136	2000030900071	
RIGHT WING ATTACHMENT FITTING STA 136 UNDER AFT BAGGAGE COMPARTMENT FLOOR. PLATE, P/N 23662-00, AND FITTING, P/N 23663-00, RIVETS GONE.						
RAYTHN			DRAG BRACE	CRACKED	03/14/2000	
65A90			508202043	NLG	2000031700100	
DURING AN AFTER-FLIGHT INSPECTION OF THE NOSE WHEEL BAY AREA, A CRACK WAS NOTICED EXTENDING FROM THE LUBRICATOR UPON THE NLG BRACE. UPON INSPECTION, NOTED THIS NLG BRACE WAS OF THE OLDER STYLE.						

The low number of reports in this addition is due to conversion of our computer management system. We should return to the normal volume next month.

OMB No. 2120-0003

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

MALFUNCTION OR DEFECT REPORT

OPER. Control No.	
ATA Code	
1. **A/C Reg. No.**	**N-**

Enter pertinent data	**MANUFACTURER**	**MODEL/SERIES**	**SERIAL NUMBER**
2. **AIRCRAFT**			
3. **POWERPLANT**			
4. **PROPELLER**			

5. SPECIFIC PART *(of component)* CAUSING TROUBLE

Part Name	MFG. Model or Part No.	Serial No.	Part/Defect Location.

6. APPLIANCE/COMPONENT *(Assembly that includes part)*

Comp/Appl Name	Manufacturer	Model or Part No.	Serial Number

Part TT	Part TSO	Part Condition	7. Date Sub.

8. Comments *(Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.)*

Optional Information:

Check a box below, if this report is related to an aircraft

☐ Accident; Date _____ ☐ Incident; Date _____

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SUBMITTED BY:

TELEPHONE NUMBER: ( ) –

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Use this space for continuation of Block 8 (*if required*).

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This publication is once again available in printed form.

In the December issue of the Alerts, we informed readers of the decision to discontinue printing the Alerts. The decision was a difficult one to make, and we have heard from many of our readers. There is good news on the horizon.

The Superintendent of Documents, Government Printing Office (GPO) has agreed to distribute the Alerts for a subscription fee. The subscription charge will be $25 yearly for domestic mailings and $31.25 for foreign mailings.

To receive a monthly copy of the Alerts, please fill out the attached form and send it to the address indicated below with your payment.

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